Honeywell

V5422L / V5422E
ACTUATED BUTTERFLY VALVES

SPECIFICATION DATA

FEATURES

- **With factory-mounted electric actuator**
- **Centric butterfly valve with elastomer liner**
- **Wide DN range (DN250 through DN600)**
- **For heating water containing up to 50° glycol**
- **Wafer body**
- **For modulating and floating control**
- **maintenance-free control drive**
- **mechanical setting indicator**
- **includes manual operation**
- **ample reserve torque**
- **sizable terminal compartment for cabling**
- **long unit lifetime**

GENERAL

The V5422L and V5422E Actuated Butterfly Valves are suitable for heating and cooling applications as well as in boiler management systems. They can also be employed for general services, water treatment, etc.

The V5422L series is equipped with floating-control actuators (230 V, three-point).

The V5422E series is equipped with modulating-control actuators with a standard control signal of 0...10 V (2...10 V, 0...20 mA, and 4...20 mA also possible).

The actuators and valves are provided factory-mounted. The position control and the end stops are completely justified.

SPECIFICATIONS

Valves

Sizes	DN250...DN600
Nominal pressure rating	PN10
Shut-off pressure	10 bar
Tightness	bubble-tight
Temperature of medium	-10...+110 °C
Body	Wafer, ductile iron GG25 Rilsan/epoxy-coated
Liner	EPDM EW (max. 130 °C)
Disc	GGG40, epoxy-coated
Shaft	Stainless steel 1.4028 (AISI 420)

Actuators

Motor voltage	230 Vac (±10%), 50 to 60 Hz
Current, running time	See Table 1
Angle of rotation	90°
Duty cycles	max. 30% (class S4 IEC60034)
Running noise	65 dBA
Ambient temperature	-20...+70 °C
Motor insulation	class F according to VDE 0530
Protection class	IP67 as per DIN 40050
Cable gland	PG16, cable 9...16 mm

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CE

Table 1. Type list for different valve sizes and corresponding data

floating version	modulating version	actuator current (A)		run time (sec)	actuator torque (Nm)	valve size (DN)	Kvs (m^3/h)	weight (kg)
		nominal	start					
V5422L1006	V5422E1001	1.2	1.7	30	600	250	4800	39.2
V5422L1014	V5422E1019	1.2	1.7	30	600	300	7000	48
V5422L1022	V5422E1027	2.0	3.0	30	800	350	8300	60
V5422L1030	V5422E1035	1.2	1.7	60	1200	400	11000	87
V5422L1048	V5422E1043	2.5	3.5	60	1500	450	14000	127
V5422L1055	V5422E1050	2.5	3.5	105	2500	500	18000	193
V5422L1063	V5422E1068	2.5	3.5	120	4000	600	25000	250

GENERAL CHARACTERISTICS

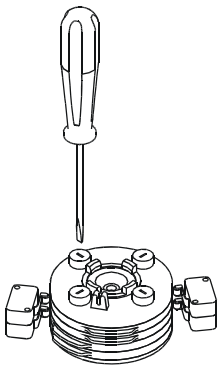
Position Indication and Running Status

The actuator's position is indicated by a mechanical pointer located behind a window on the actuator's cover.

The actuator's running status is indicated by three LED's located on the printed circuit board:

- The green LED (Op) is lit when the valve has been opened.
- The red LED (Cl) is lit when the valve has been closed.

Angle Limitation



The angle at the drive shaft can be adjusted to between 0° and 90°.

The end position is limited both electrically and mechanically. The electrical limitation can be adjusted by pressing and turning (with a screwdriver) the adjustment screws situated on the white and black cams.

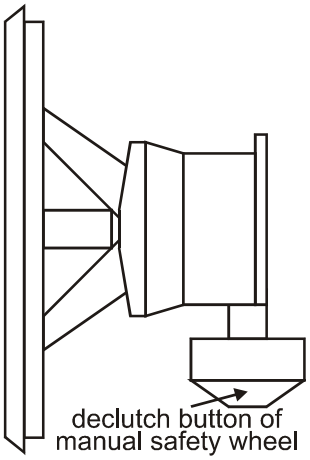
The end position is factory-set to -2° and +92°. As a rule, it is not necessary to alter this value.

Emergency Manual Operation

⚠ CAUTION

Before manually adjusting the valve, you must first disconnect the power supply.

It is possible to adjust the valve using the full-disk manual safety wheel.



Actuators with a valve size of DN500 and DN600 are equipped with a manual safety wheel which is declutched automatically when the motor is running. Prior to using the manual safety wheel, it must be re-engaged using the declutch button.

In the case of actuators with a valve size of DN250 and DN300, the motor can be disengaged using the motor declutch lever.

Motor and Gear Protection

The actuator motor is protected against overheating by a bimetal temperature monitor.

The motor and gear train are also protected against mechanical overload by a torque limiter switch. The yellow LED (Tq) is lit when the torque limiter has been activated.

Maintenance

The actuators are maintenance-free. They are lubricated for a minimum of 100,000 operations.

If it becomes necessary to renew the grease completely, use a lubricant complying with the following specifications:

- temperature range: -30...+135 °C
- penetration: ASTM 265/295 at 25 °C
- drop point: 180 °C

E.g. ELF Expecta 250, TOTAL Multis EP2, SHELL alvania EP2, MOBIL Mobilux EP2, or ESSO Beacon EP2.

Flow Rate and Pressure Drop

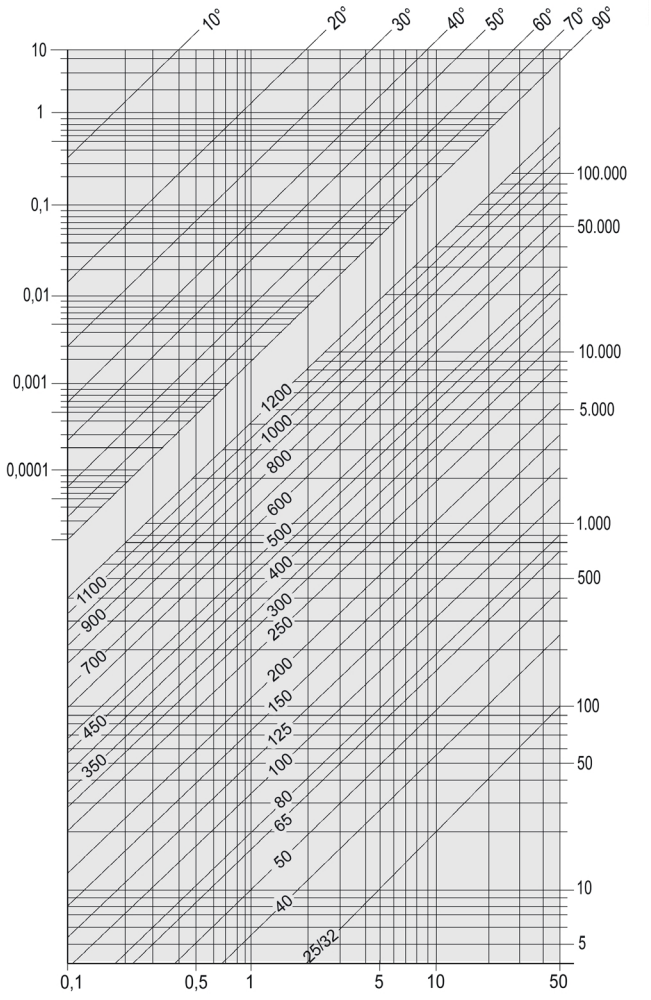


Fig. 1. Flow rate and valve pressure drop

Floating Control (V5422L)

The V5422L series is equipped with a printed circuit board (see Fig. 2). This board is situated under the cover, where the angle indicator is likewise located. To access the printed circuit board, remove the cover.

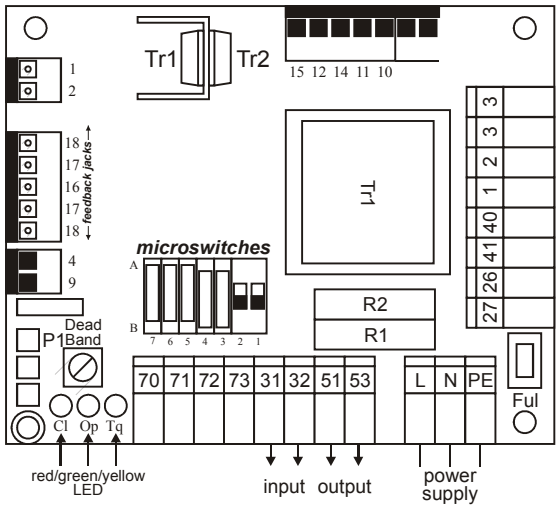


Fig. 2. Printed circuit board of the V5422L

Microswitch Positions

For floating control, the microswitches located on the printed circuit board (see Fig. 2) must be positioned as shown in Fig. 3.

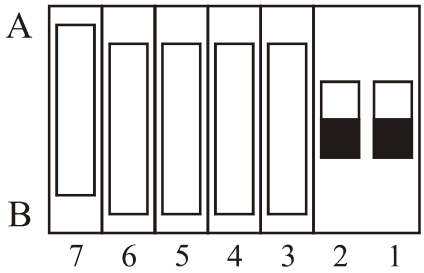


Fig. 3. Microswitch settings for V5422L

Input Terminals

An external floating controller controls the actuator of the V5422L. This controller transmits the phase to input 31 (for closing the valve) or to input 32 (for opening the valve). See also Fig. 8.

Output Terminals

In the "closed" end position, output 51 transmits the phase to an external indicator. In the "opened" end position, output 52 transmits the phase to an external indicator.

Modulating Control (V5422E)

The V5422E series is equipped with a printed circuit board (see Fig. 4). This board (together with a feedback potentiometer) is situated under the cover, where the angle indicator is likewise located. To access the printed circuit board, remove the cover.

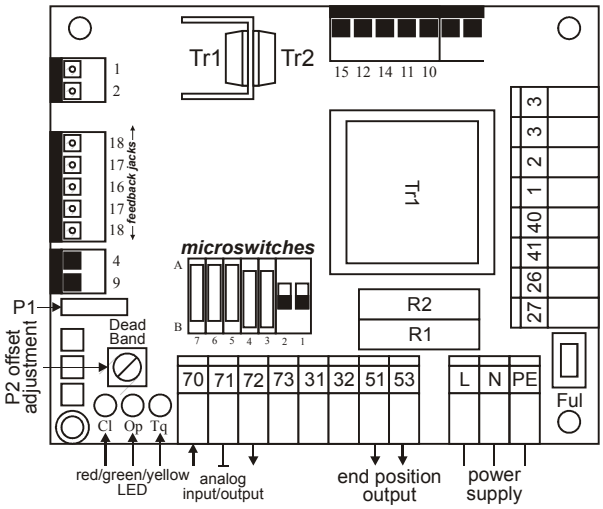


Fig. 4. Printed circuit board of the V5422E

Microswitch Positions

Fig. 5 shows the settings of the microswitches located on the printed circuit board (see Fig. 4) at delivery-time.

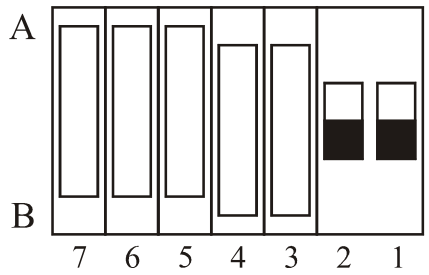


Fig. 5. Microswitch settings for the V5422E at delivery

Microswitches 1, 2, 3, and 4 are used to set the input signal range (0/2...10 V or 0/4...20 mA) and the corresponding output signal (see Table 2).

Table 2. Resetting microswitches

input/output signal	microswitch positions						
	7	**6**	**5**	**4**	**3**	**2**	**1**
0...10 V	A	A	A	B	B	B	B
2...10 V	A	A	A	A	B	B	B
4...20 mA	A	A	A	A	A	A	A
0...20 mA	A	A	A	B	A	A	A

Terminals for Input/Output Signals

An external modulating controller controls the actuator of the V5422E by means of an analog signal provided at terminal 70/71. An analog output signal for position indication is provided at terminal 71/72.

Adjusting the Input/Output Signal Offset

The offset of modulating actuators is adjusted at the factory and should not be changed. If you wish to change the offset (using offset potentiometer P2; see Fig. 4), note that a excessively small offset will result in oscillation of the actuator.

Reversing Rotation Direction

In the case of the V5422E, it is possible to reverse the direction of rotation of the valve by adjusting the feedback signals. The feedback signals are adjusted by resetting the microswitches and replugging the feedback potentiometer's cables. To do this, proceed as follows:

1. Turn the power off.
2. Reset the microswitches as shown in Table 2, but with microswitch 7 in position B.
3. Replug the feedback potentiometer's cables as shown in Fig. 6.

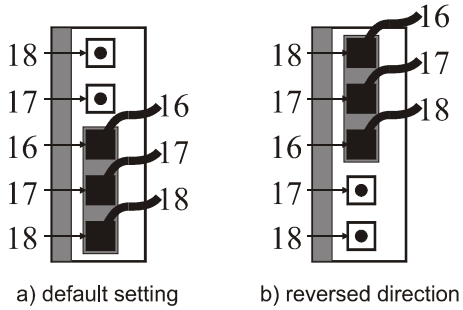


Fig. 6. Replugging the feedback potentiometer's cables

4. Apply the desired control signal (10 V or 20 mA, as the case may be) for the closing position.
5. Turn the power back on.
6. Using a small screwdriver, adjust the potentiometer P1 (located on the printed circuit board; see Fig. 4) until the valve closes completely.

Valve Mounting

Install the actuated valve in the pipe according the following steps (see also Fig. 7).

1. Spread the valve's flanges to facilitate installation. The valve's disc must be partially open.
2. Set all stay-bolts while keeping the valve's disc slightly open and without tightening the nuts.
3. Open the valve's disc completely. Ensure that the piping is aligned. Tighten diagonally opposite the nuts until the flanges are in contact with the body of the valve. Never use gaskets or grease. Never weld the flanges after the valve has been installed.

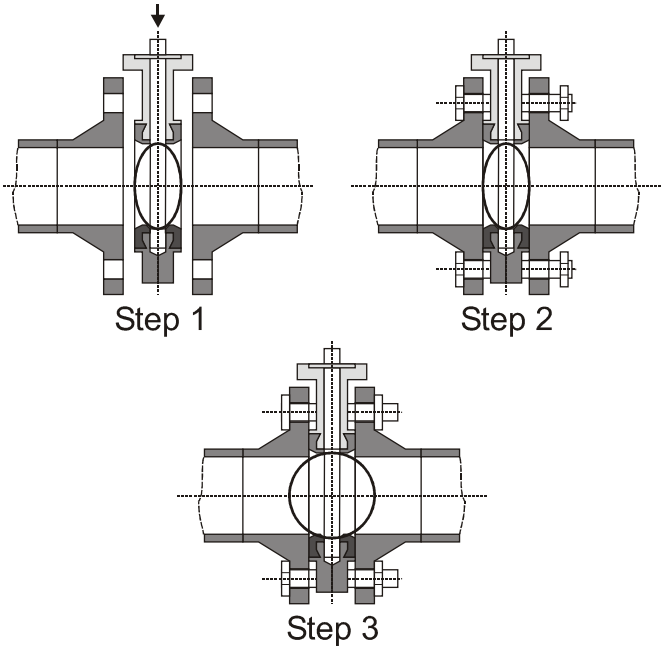


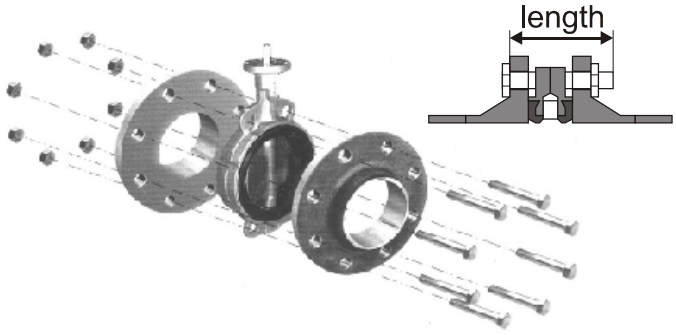
Fig. 7. Remounting the valve

Bolting

The following table lists the number (n) of bolts and nuts required for mounting. The number (n) is dependent upon the size (DN).

Table 3. Bolts and nuts required for installation

DN	PN10	
	bolts (M x length)	n
250	M20x150	12
300	M20x160	12
350	M20x160	16
400	M24x190	16
450	M24x240	16
500	M24x260	16
600	M27x300	16



WIRING DIAGRAMS

Floating Control (V5422L)

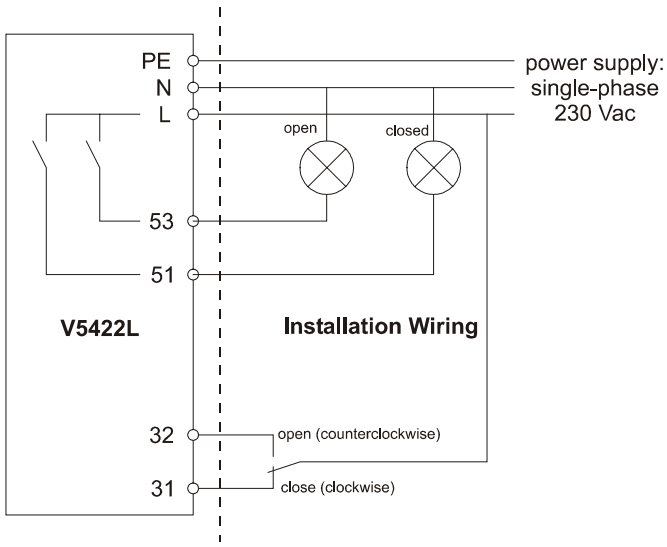


Fig. 8. Wiring diagram, V5422L

Modulating Control (V5422E)

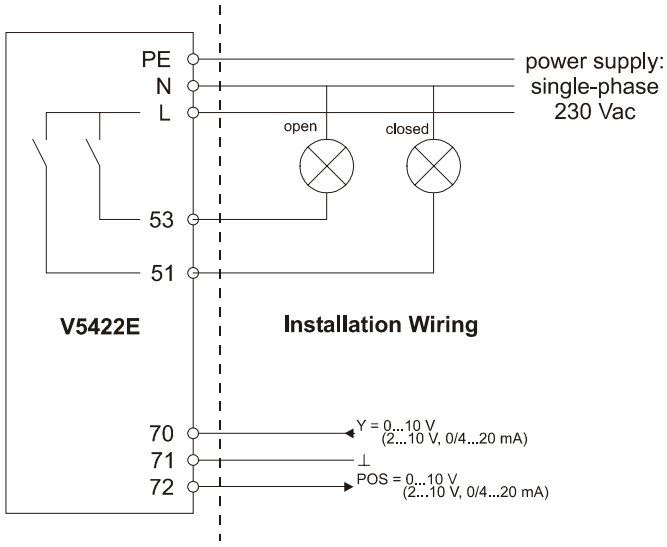


Fig. 9. Wiring diagram, V5422E

ACTUATED VALVE DIMENSIONS

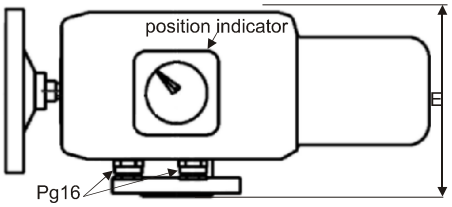


Fig. 10. Actuated butterfly valve (side view)

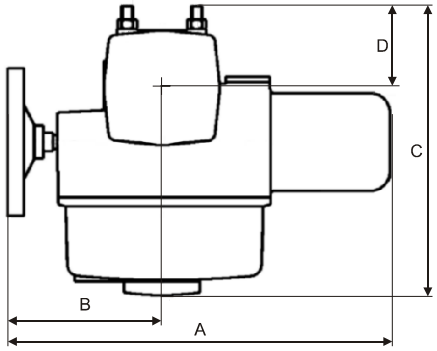


Fig. 11. Actuated butterfly valve (top view)

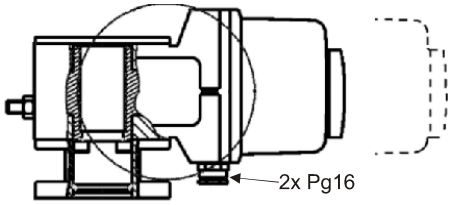


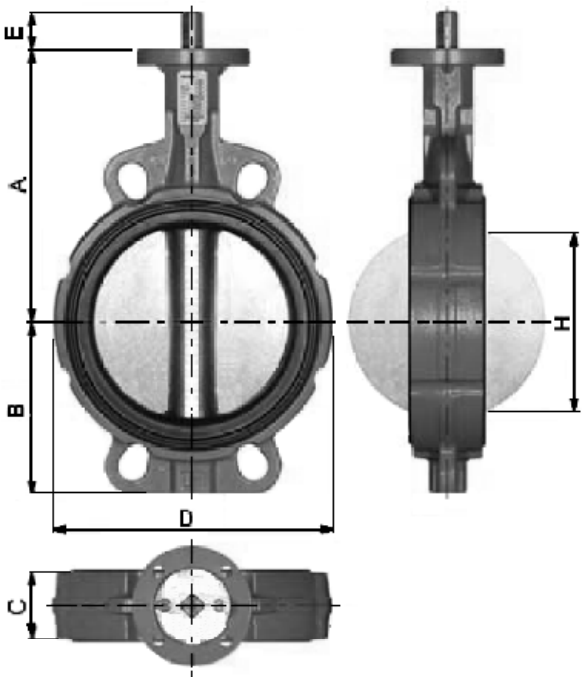
Fig. 12. Actuated butterfly valve (cross-sectional view)

Table 4. Actuator dimensions and weight

valve size (DN)	actuator dimensions (mm)					weight (kg)
	A	B	C	D	E	
250	509	169	315	89	177	17
300	509	169	315	89	177	17
350	509	169	315	89	177	17
400	564	172	417	133	167	30
450	564	172	417	133	167	30
500	754	566	442	109	281	68
600	645	497	442	154	28	70

Table 5. Valve dimensions and weight

valve size (DN)	valve dimensions (mm)					weight (kg)
	A	B	C	D	H	
250	280	196	68	324	243.5	22.2
300	315	232	78	378	292.5	30.8
350	330	257	78	425	329.5	41.5
400	365	292	102	475	375.5	57.2
450	400	359	114	^538	426	95.0
500	440	397	127	595	577	125
600	525	467	154	695	572	180



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